What is claimed is:

1. A hydrogen permeable membrane comprising a non-crystalline nickel-zirconium alloy composed of:

44 to 75 atom % of nickel and

0.2 to 16 atom % of aluminum,

with the balance being zirconium and unavoidable impurities;

or comprising a non-crystalline zirconium-nickel alloy composed of

44 to 75 atom % of zirconium and

0.2 to 16 atom % of aluminum,

with the balance being nickel and unavoidable impurities.

2. The hydrogen permeable membrane of claim 1 wherein, if the balance is nickel, the nickel content is not more than 43 atom %.

3. A hydrogen permeable membrane comprising a non-crystalline nickel-zirconium alloy composed of:

44 to 75 atom % of nickel and

0.2 to 12 atom % of vanadium and/or niobium,

with the balance being zirconium and unavoidable impurities;

or comprising a non-crystalline zirconium-nickel alloy composed of

44 to 75 atom % of zirconium and

0.2 to 12 atom % of vanadium and/or niobium,

with the balance being nickel and unavoidable impurities.

4. The hydrogen permeable membrane of claim 3 wherein, if the balance is nickel, the nickel content is not more than 43 atom %.

5. A hydrogen permeable membrane comprising a non-crystalline nickel-zirconium alloy composed of:

44 to 75 atom % of nickel,

0.2 to 12 atom % of niobium, and

0.1 to 10 atom % of phosphorus, provided the combined amount of niobium and phosphorus is not more than 18 atom %,

with the balance being zirconium and unavoidable impurities;

or comprising a non-crystalline zirconium-nickel alloy composed of

44 to 75 atom % of zirconium,

0.2 to 12 atom % of niobium, and

0.1 to 10 atom % of phosphorus, provided the combined amount of niobium and phosphorus is not more than 18 atom %,

with the balance being nickel and unavoidable impurities.

6. The hydrogen permeable membrane of claim 5 wherein, if the balance is nickel, the nickel content is not more than 43 atom %.